We claim:

1. A Border Gateway Protocol Speaker (BGP Speaker) in a communication system which implements at least one network based Virtual Private Network (NB-VPN) across a backbone, the at least one NB-VPN using an Open System Interconnect (OSI) layer-2 protocol and an OSI layer-3 protocol, at least one NB-VPN using an OSI layer-2 protocol different from an OSI layer-2 protocol used by the backbone or using an OSI layer-3 protocol different from an OSI layer-3 protocol used by the backbone, the BGP Speaker transmitting an Update message being in conformance with a Border Gateway Protocol (BGP), and the Update message further including:

Virtual Private Network (VPN) Membership information;

a VPN Reachability Mode field;

VPN Reachability information; and

Tunnel Mechanism information.

2. The BGP Speaker of claim 1 wherein the VPN Membership information includes:

at least one VPN Identification (VPN-ID) field; and

a Number of VPN-IDs field.

3. The BGP Speaker of claim 1 wherein the VPN Reachability information includes zero or more VPN Reachability Entries.

4. The BGP Speaker of claim 3 wherein a VPN Reachability Entry includes:

a VPN Reachability Type field;

a Length field; and

a VPN Reachability Value field.

5. The BGP Speaker of claim 1 wherein the Tunnel Mechanism information includes zero or more VPN Tunnel Entries.

6. The BGP Speaker of claim 5 wherein a VPN Tunnel Entry includes:

a Tunnel Type field;

a Length field; and

a Tunnel Value field.

7. The BGP Speaker of claim 1 wherein the Update message includes a unique Subsequent Address Family Identifier (SAFI) value indicating that the Update message includes:

Virtual Private Network (VPN) Membership information;

VPN Reachability information; and

Tunnel Mechanism information.

8. The BGP Speaker of claim 7 wherein the unique SAFI value is 129.

9. The BGP Speaker of claim 1 wherein the Update message further includes a field indicating a topology of a NB-VPN.

10. In a communication system which implements at least one network based Virtual Private Network (NB-VPN) across a backbone, the at least one NB-VPN using an Open System Interconnect (OSI) layer-2 protocol and an OSI layer-3 protocol, at least one NB-VPN using an OSI layer-2 protocol different from an OSI layer-2 protocol used by the backbone or using an OSI layer-3 protocol different from an OSI layer-3

protocol used by the backbone, a data format of an Update message, the data format being in conformance with a Border Gateway Protocol (BGP) and further including:

Virtual Private Network (VPN) Membership information;

a VPN Reachability Mode field;

VPN Reachability information; and

Tunnel Mechanism information.

11. The data format of claim 10 wherein the VPN Membership information includes:

at least one VPN Identification (VPN-ID) field; and

a Number of VPN-IDs field.

12. The data format of claim 10 wherein the VPN Reachability information includes zero or more VPN Reachability Entries.

13. The data format of claim 12 wherein a VPN Reachability Entry includes:

a VPN Reachability Type field;

a Length field; and

a VPN Reachability Value field.

14. The data format of claim 10 wherein the Tunnel Mechanism information includes zero or more VPN Tunnel Entries.

15. The data format of claim 14 wherein a VPN Tunnel Entry includes:

a Tunnel Type field;

a Length field; and

a Tunnel Value field.

16. The data format of claim 10 wherein a unique Subsequent Address Family Identifier (SAFI) value is used to indicate that the Update message includes:

Virtual Private Network (VPN) Membership information;

VPN Reachability information; and

Tunnel Mechanism information.

17. The data format of claim 16 wherein the unique SAFI value is 129.

18. The data format of claim 10 further including a field indicating a topology of a NB-VPN.

19. A Virtual Router (VR) in a communication system which implements at least one network based Virtual Private Network (NB-VPN) across a backbone, the at least one NB-VPN using an Open System Interconnect (OSI) layer-2 protocol and an OSI layer-3 protocol, at least one NB-VPN using an OSI layer-2 protocol different from an OSI layer-2 protocol used by the backbone or using an OSI layer-3 protocol different from an OSI layer-3 protocol used by the backbone, the VR receiving an Update message being in conformance with a Border Gateway Protocol (BGP), the Update message further including information relating to a NB-VPN to which the VR belongs and information relating to networking systems used by the NB-VPN to which the VR belongs, and the VR including instructions for establishing an OSI layer-2 connection to at least one other VR in the communication system.

20. The Virtual Router of claim 19 wherein the Update message includes a unique Subsequent Address Family Identifier (SAFI) value indicating that the Update message includes:

Virtual Private Network (VPN) Membership information;

VPN Reachability information; and

Tunnel Mechanism information.

21. The Virtual Router of claim 20 wherein the unique SAFI value is 129.